

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTER PATENT
OF THE UNITED STATES IS:

1. A toner replenishing device configured to replenish a developing device with toner stored in a toner storing device, said toner replenishing device comprising:

a toner conveyance path extending from the toner storing device to the developing device;

a toner conveying device configured to convey the toner from the toner storing device to the developing device along the toner conveyance path; and

an air supplying device configured to supply the toner storing device with air from a bottom of the toner storing device; wherein

said air supplying device is connected to the toner conveyance path via an air supply path.

2. The toner replenishing device according to claim 1, wherein said toner storing device includes an evacuation section at an upper portion thereof.

3. The toner replenishing device according to claim 1, wherein said evacuation section comprises a breathable filter.

4. The toner replenishing device according to claim 1, wherein said toner storing device includes a toner ejection hole at a bottom portion thereof.

5. A multicolor image forming apparatus employing an electrophotographic system, comprising:

a plurality of developing devices configured to develop a latent image with different mono color toners;

a plurality of toner storing devices configured to store the different mono color toners, respectively; and

a toner replenishing device configured to replenish the plurality of developing devices with applicable mono color toner; wherein

said toner replenishing device includes a plurality of toner conveyance paths extending from the plurality of toner storing devices to the plurality of developing devices, respectively, a toner conveying device configured to convey the different mono color toners from the plurality of toner storage containers to the plurality of developing devices, respectively, along an applicable toner conveyance path, and an air supplying device configured to supply the plurality of toner storing devices with air from bottoms of the plurality of toner storing devices; wherein

said air supplying device is connected to the plurality of toner conveyance paths via a plurality of air supply paths and includes an air supply control device configured to control supplying of air to the plurality of toner storing devices and a smaller number of air generation sources than said plurality of toner storing devices.

6. The multicolor image forming apparatus according to claim 5, wherein said plurality of air supply paths include a plurality of openable valves.

7. The multicolor image forming apparatus according to claim 6, wherein said air supply control device controls both a driving of the air generation source and opening and closing of the plurality of openable valves in such a manner that the plurality of toner storing devices are sequentially supplied with the air when the air generation sources are driven.

8. The multicolor image forming apparatus according to claim 7, wherein said air generation source includes an air storing device supplied with air by an air pump.

9. The multicolor image forming apparatus according to claim 8, wherein said air supply control device controls driving of the air pump and opening and closing of the plurality of openable valves in such a manner that the plurality of toner storing devices is

sequentially supplied with air when the air pump is driven and the air storage device is filled with the air.

10. An image forming apparatus employing an electrophotographic system, comprising:

a toner storing device configured to store toner;

a developing device configured to develop a latent image with toner;

a cleaning device configured to collect toner used by the developing device, the toner cleaning device including a toner ejection hole configured to eject the toner collected by the cleaning device; and

a toner replenishing device configured to replenish the developing device with the toner, the toner replenishing device including a toner conveyance path extending from the toner storing device to the developing device, wherein said toner ejection hole is connected to a middle portion of the toner conveyance path via a used toner conveyance path.

11. The image forming apparatus according to claim 10, wherein said toner replenishing device includes a powder pump configured to suck both the toner of the toner storing device and the used toner ejected from the toner collecting device.

12. The image forming apparatus according to claim 11, wherein both of said toner conveyance path and used toner conveyance path are comprised of a pipe made of flexible material.

13. An image forming apparatus including a toner replenishing device configured to replenish a developing device with toner stored in a toner storing device, said toner replenishing device comprising:

a toner conveyance path extending from the toner storing device to the developing device;

a toner conveying device configured to convey the toner from the toner storing device to the developing device along the toner conveyance path; and

an air supplying device configured to supply the toner storing device with air from a bottom of the toner storing device; wherein

said air supplying device is connected to the toner conveyance path via an air supply path.

14. The image forming apparatus according to claim 13, wherein said toner storing device includes an evacuation section at an upper portion thereof.

15. The image forming apparatus according to claim 14, wherein said evacuation section comprises a breathable filter.

16. The toner replenishing device according to claim 13, wherein said toner storing device includes a toner ejection hole at a bottom portion thereof.

17. A toner replenishing device configured to replenish developing means with toner stored in toner storing means, said toner replenishing device comprising:

means for allowing toner conveyance from the toner storing means to the developing means;

toner conveying means for conveying the toner from the toner storing means to the developing means along the toner conveyance allowing means; and

air supplying means for supplying the toner storing means with air from a bottom of the toner storing means; wherein

said air supplying means are connected to the toner conveyance allowing means.

18. The toner replenishing device according to claim 17, wherein said toner storing means include evacuation means for evacuating air supplied to the toner storing means.

19. A multicolor image forming apparatus employing an electrophotographic system, comprising:

developing means for developing a latent image with different mono color toners;
toner storing means for storing the different mono color toners, respectively; and
toner replenishing means for replenishing the developing means with applicable mono color toner; wherein

said toner replenishing means include the toner conveyance allowing means extending from the toner storing means to the developing means, respectively, toner conveying means for conveying the different mono color toners from the toner storing means to the developing means, respectively, along applicable toner conveyance allowing means, and air supplying means for supplying the toner storing means with air from bottoms of the toner storing means; wherein

said air supplying means are connected to the toner conveyance allowing means and include air supply control means for controlling supplying of air to the toner storing means and a smaller number of air generation means for generating air than said toner storing means.

20. The multicolor image forming apparatus according to claim 19, wherein said air supply control means controls both driving of the air generation means and opening and closing of the toner conveyance path means in such a manner that the toner storing means are sequentially supplied with the air when the air generation means are driven.

21. An image forming apparatus employing an electrophotographic system, comprising:

toner storing means for storing toner;
developing means for developing a latent image with toner;
cleaning means for cleaning and collecting toner used by the developing means, the cleaning means including toner ejection means for ejecting toner collected by the cleaning means; and

toner replenishing means for replenishing the developing means with the toner, the toner replenishing means including toner conveyance allowing means for allowing conveyance of toner from the toner storing means to the developing means, wherein said toner ejection means are connected to a middle portion of the toner conveyance allowing means.

22. A toner replenishing method, comprising the steps of:

providing a toner conveyance path extending from a toner storing device to a developing device;

connecting an air supplying device to the toner conveyance path using an air supply path;

conveying the toner from the toner storing device to the developing device along the toner conveyance path; and

supplying the toner storing device with air from a bottom of the toner storing device.

23. The toner replenishing method according to claim 22, further comprising the step of evacuating the air supplied to the toner storing device from an upper portion thereof.

24. A multicolor image forming method, comprising the steps of:

providing a plurality of toner storing devices configured to store different mono color toners;

providing a plurality of developing devices configured to develop a latent image with toner;

replenishing the plurality of developing devices with applicable mono color toner;

providing a plurality of toner conveyance paths extending from the plurality of toner storing devices to the plurality of developing devices, respectively,

conveying the different mono color toners from the plurality of toner storing devices to the plurality of developing devices, respectively, along an applicable toner conveyance path,

providing an air supplying device configured to supply the plurality of toner storing devices with air from bottoms of the plurality of toner storing devices;

connecting the air supplying device to the plurality of toner conveyance paths via a plurality of air supply paths;

providing an air supply control device configured to control supplying of air to the plurality of toner storage containers; and

providing a smaller number of air generation sources than said plurality of toner storing devices.

25. The multicolor image forming method according to claim 24, further comprising the step of controlling both driving of the air generation source and opening and closing of the plurality of toner conveyance paths in such a manner that the plurality of toner storage containers is sequentially supplied with the air when the air generation sources is driven.

26. An image forming method, comprising the steps of:

providing a toner storing device configured to store toner;

providing a developing device configured to develop a latent image with toner;

providing a cleaning device configured to collect toner used by the developing device;

providing a toner election hole configured to eject the toner collected by the cleaning device;

providing a toner replenishing device configured to replenish the developing device with the toner;

providing a toner conveyance path extending from the toner storing device to the developing device; and

connecting said toner ejection hole to a middle portion of the toner conveyance path via a used toner conveyance path.

27. The image forming method according to claim 26, further comprising the step of sucking both the toner from the toner storing device and the used toner ejected from the toner cleaning device.